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Quality Engineering Test Report

SERIES: SP-100 100 WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.SP-100-3.3 3.3V / 20A D.SP-100-12 12V /8.5A G.SP-100-24 24V /4.2A
B.SP-100-5 5V /20A E.SP-100-13.5 13.5V /7.5A H.SP-100-27 27V /3.8A
C.SP-100-7.5 7.5V /13.5A F.SP-100-15 15V /6.7A I.SP-100-48 48V /2.1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	F : 54V~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A: ±0.5% B: ±0.5% C:±0.5% D: ±0.5% E: ±0.5% G:±0.5% H: ±0.5% I: ±0.5%	A: 0.18% ~ 0.18% B: -0.36% ~ 0.36% C: 0% ~ 0% D: 0% ~ 0% E: 0% ~ 0% F: 0% ~ 0% G: 0% ~ 0.02% H: 0% ~ 0% I: -0.01% ~ -0.01%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±1% B: ±1% C: ±1% D: ±0.5% E: ±0.5% F: ±0.5% G: ±0.5% H: ±0.5% I: ±0.5%	A: 0.35% ~ 0.17% B: -0.12% ~ 0.12% C: -0.24% ~ 0.16% D: -0.04 % ~ 0% E: 0% ~ 0.042% F: -0.07% ~ 0.07% G: 0% ~ 0.020% H: 0.06% ~ -0.04% I: 0% ~ 0.024%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±2% B: ±2% C: ±2% D: ±2% E: ±2% F: ±2% G: ±1% H: ±1% I: ±1%	A: -1.19% ~ 0% B: 1% ~ 1.3% C: -0.4% ~ 0.07% D: 0% ~ -0.05% E: 0.50% ~ 0.45% F: 0.10% ~ 0.74% G: 0.70% ~ 0.75% H: 0.67% ~ 0.6% I: 0.46% ~ 0.41%	P
5	RIPPLE & NOISE	I/P:230VAC SPEC: O/P: FULL LOAD A:100mV B:100mV C:100mV D:100mV E:100mV F:100mV G :150mV H:150mV I:250mV	A: 37mV B: 92mV C: 76mV D: 52mV E: 65mV F: 58mV G: 66mV H: 50mV I: 87mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.75A(3.3v:0.06A) O/P:FULL LOAD	F:0.55A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	F:14.8A	P

NEXT

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: +10%~-5% O/P:MIN. LOAD A:3.1V~3.6V B:4.7V~5.5V C:7.12V~8.25V D:11.4V~13.2V E:12.8 V~14.8V F:14.2V~16.5V G:22.8V~26.4V H:25.6V~29.7V I:45.6V~52.8V	A:3.08V~3.8V B:4.39V~5.54V C:6.33V~9.06V D:10.1V~13.6V E:11.55V~14.89V F:12.79V~17.63V G:19.6V~27.4V H:20.15V~30.09V I:40V~54.3V	P
9	SET UP TIME	I/P:230VAC SPEC:600ms O/P:FULL LOAD	F:56mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	F:34mS	P
11	EFFICIENCY	I/P:230VAC SPEC: O/P: FULL LOAD A:70% B:76% C:78% D:80% E:80% F:82% G:84% H:83% I:82	A: 70.20% B: 78.01% C: 78.76% D: 83.05% E: 83.64% F: 81.37% G: 86.20% H: 87.07% I: 87.13%	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC:105%~150% O/P:TESTING	A: 130% B: 112% C: 130% D: 122% E: 118% F: 148% G: 124% H: 128% I: 133%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:110%~135% O/P: TESTING A3.63~4.45 V B:5.5~6.75V C:8.25~10.12V D:13.2~16.2V E:14.8~18.2V F:16.5~20.2V G:26.4~32.4V H:29.7~36.4V I:52.8~64.8V	A: 4.2V B: 5.79V C: 9.3V D: 14.3V E: 15.8V F: 19.0V G: 29.1V H: 31.8V I: 56.8V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<2mA N-FG--<2mA	A: L-FG:0.6mA N-FG:0.48mA	P
15	GROUNDING CONTINUITY	SPEC: FG--CHASSIS<0.1Ohms/2min	A: 52mOhms	P
16	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC / 100M Ohms MIN. I/P-O/P 500VDC / 100M Ohms MIN. I/P-FG 500VDC / 100M Ohms MIN.	A: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P

PREVIOUS NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>17</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC： I/P- O/P: 3000VAC/ 60 sec (10mA CUT-OFF)
I/P - FG: 1500VAC/ 60 sec (10mA CUT-OFF)
O/P - FG: 500VAC/60sec (10mA CUT-OFF)</td><td>:F I/P-O/P : 4.00mA
I/P-FG : 3.38mA
O/P- FG : 3.56mA</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P:FULL LOAD with cooling FAN
TA:26.7℃ BURN-IN DURATION : 13.5 hrs</td><td>B: NON BREAK</td><td>P</td></tr>
<tr><td rowspan="3">19</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P : 230 VAC O/P : 80% LOAD
AMBIENT TEMPERATURE：-10.1°C</td><td>B :
AFTER 2 hrs POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE TEST
I/P : 230VAC O/P: FULL LOAD
TEMPERATURE：40.3°C with cooling FAN</td><td>B :
AFTER 2.5hrs NON BREAK</td></tr>
<tr><td>3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST
I/P : 272VAC O/P : FULL LOAD
AMBIENT TEMPERATURE：25°C
AMBIENT HUMIDITY : 95%</td><td>I :
AFTER14.5 hrs POWER ON/OFF
NON BREAK</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST Trise OF PARTS</td><td colspan="2">B: I/P : 230VAC AFTER 13 hrs BURN-IN
O/P : FULL LOAD TA : 26.2°C
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>51.5°C</td><td>25.3°C</td></tr>
<tr><td></td><td>Q2</td><td>MAIN TRANSISTOR</td><td>60.0°C</td><td>33.8°C</td></tr>
<tr><td></td><td>Q1</td><td>PFC TRANSISTOR</td><td>43.9°C</td><td>17.7°C</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>60.5°C</td><td>34.3°C</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>65.9°C</td><td>39.7°C</td></tr>
<tr><td></td><td>D19</td><td>O/P DIODE</td><td>61.9°C</td><td>35.7°C</td></tr>
<tr><td></td><td>C42</td><td>O/P FILTER CAPACITOR</td><td>60.3°C</td><td>34.1°C</td></tr>
<tr><td></td><td>L2</td><td>O/P CHOCK</td><td>76.8°C</td><td>50.6°C</td></tr>
<tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>43.6°C</td><td>17.4°C</td></tr>
<tr><td></td><td>LF1</td><td>LINE FILTER COIL</td><td>42.1°C</td><td>15.9°C</td></tr>
<tr><td></td><td>D2</td><td>PFC DIODE</td><td>36.9°C</td><td>10.7°C</td></tr>
</table></td><td>P</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C42 IS THE MOST CRITICAL COMPONENT
I/P : 230VAC O/P：FULL LOAD Ta : 25°C Tc42 : 59.1°C Life:143581hrs
I/P : 230VAC O/P：FULL LOAD Ta : 40°C Tc42 : 72.2°C Life:57909hrs</td><td>P</td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">B :
FUSE :4A/250V GFE/GMA
BRIDGE DIODE : D3SB60 4A/800V GL
LINE FILTER :TF-479 ET-24 10mH
TRANSFOMER :TF-594 EI-33
OUTPUT DIODE :CTB34M 30A/40V ESAD83004
OUTPUT CAPACITOR :N.C.C 2200uF/10V 105°C RJH
INPUT CAPACITOR :HITACHI 100uF/400V,85°C HP3/USC
P.C.B :SP-100 CEM-3 20Z SS</td></tr>
</table>

PREVIOUS NEXT

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19990904	RD SAMPLE	PASS	H.C.LIOU	Max Lin
19991014	PRODUCTION SAMPLE 3.3V,5V,7.5V 12V,13.5V,15V 24V,27V,48V	PASS	C.C.CHEN	Max Lin
20000619	PRODUCTION SAMPLE A006B09 3.3V,7.5V	PASS	VINCENT	Max Lin
20000828	PRODUCTION SAMPLE A008C04 12V	PASS	VINCENT	Max Lin
20020103	PRODUCTION SAMPLE A112D23 13.5V	PASS	VINCENT	Max Lin

PREVIOUS